NEW DIMENSIONS OF FOOD SECURITY: IMPLICATIONS ON SELF SUFFICIENCY AND OTHER CONCERNS

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[The views expressed herein are entirely those of the author and do not necessarily reflect the position of the agency he serves]

OUTLINE:

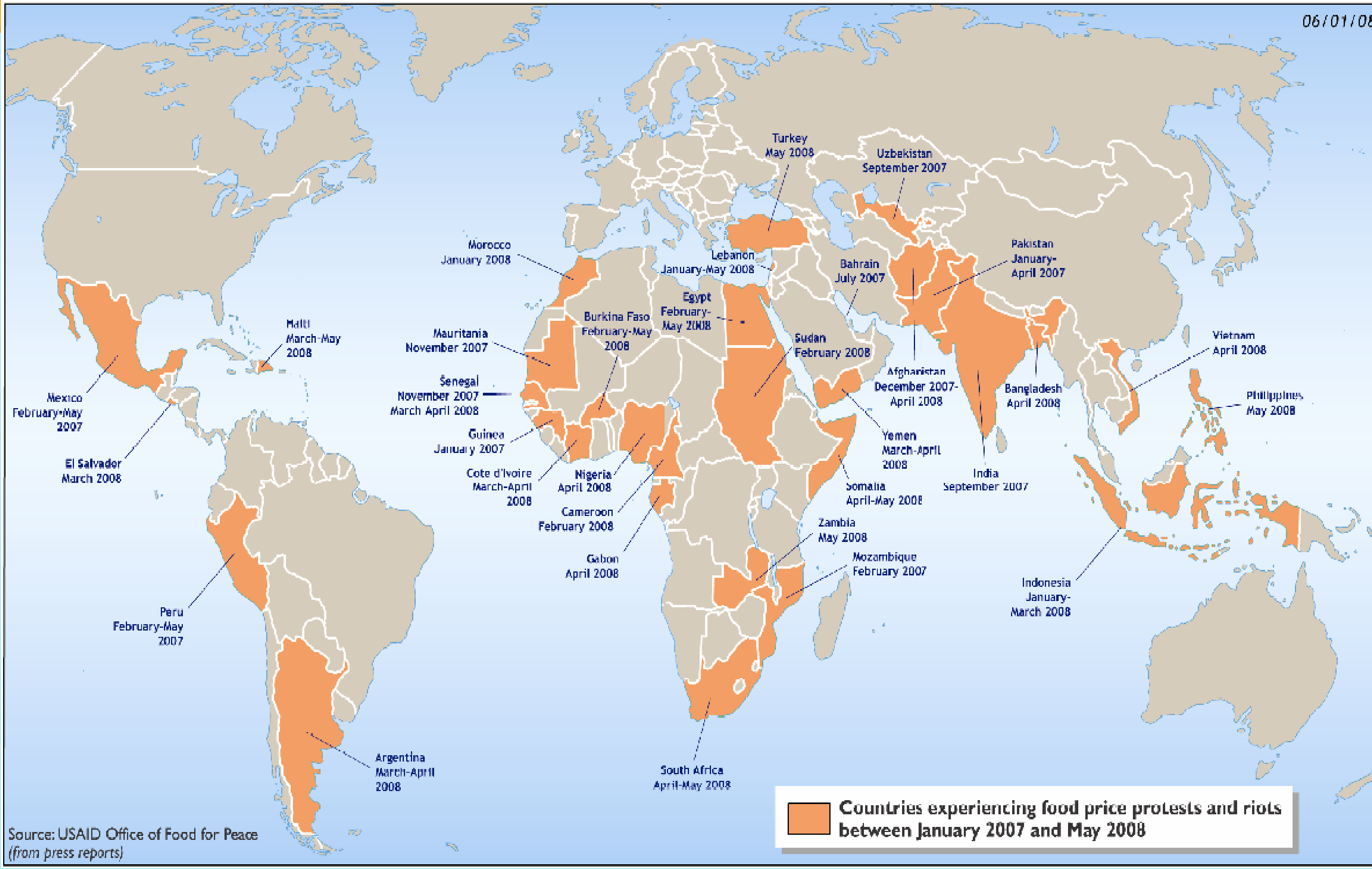
1. INTRODUCTION
2. FOOD SECURITY: NEW DIMENSIONS, STRATEGIC ARRANGEMENTS AT NATIONAL AND REGIONAL LEVELS
3. IMPLICATIONS ON SELF SUFFICIENCY & FOOD IMPORT BILL
4. THE CASE OF RICE
5. CONCLUSION

INTRODUCTION:

- ***Purpose*: Consider Food Security and implications on self-sufficiency and other concerns (implicit emphasis on rice) – in the wake of key changes and new dimensions related to Food Security**

- **Underlying theme: It is prudent to recognise the new dimensions in Food Security, the interplay and linkages of these new dimensions with increasing importance of cross border solutions/opportunities involving Public-Private Partnership so as to be able to 'get the basics and balance right' in line with the PPA 2009 Theme of *'Transforming the Nation: Constructing the Future, Investing in Prosperity'***

FOOD PRICE PROTESTS AND RIOTS FROM JANUARY 2007 TO MAY 2008



Source: USAID, Office of Food for Peace

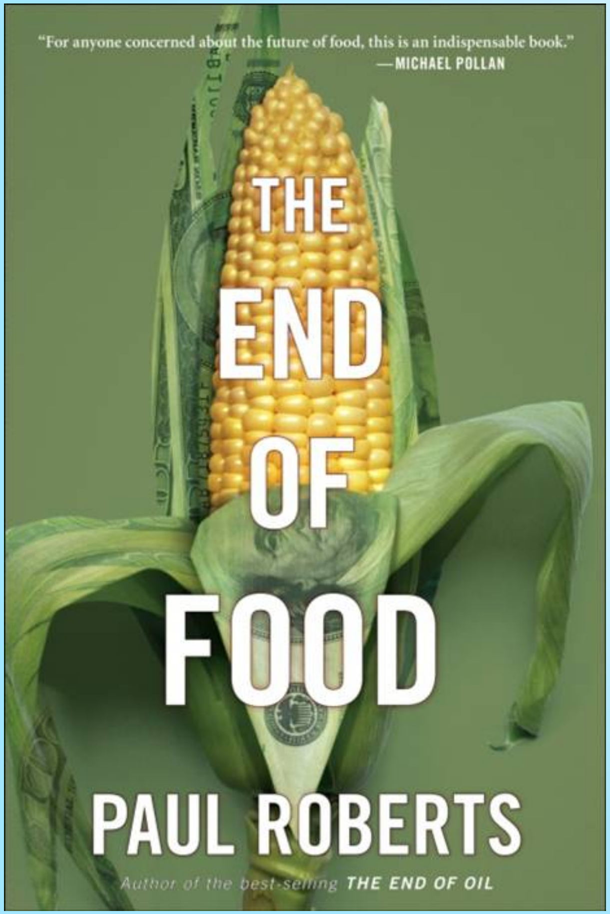
FOOD CRISIS AND FOOD SECURITY: LESSONS

- New Dimensions as compared to earlier Food Crises – Food-Feed-Fuel-Finance conundrum
- SHORTAGE? Crisis in many countries not about Shortage, but of Prices. Many instances 'shortage' – due to greed, hoarding, misinformation (i.e. 'man-made') leading to imbalance of supply and demand – Gandhian: 'enough for everyone's need BUT not everyone's greed'!
- PRICES? – international prices have retreated from peak to stabilise at new equilibrium but higher than before – End of era of 'cheap food'. And future supply systems more uncertain – requiring innovative approaches at national and regional levels
- Importance of management of Supply Chains & Trading Networks in mitigating impact in Turbulent Times – Importance of Private-Public Partnerships - Much depends on how well supply chains and international networks are managed (or mismanaged?).

FOOD CRISIS AND FOOD SECURITY (contd..)

- BLESSING – Opportunity to transform individual countries' Food/Rice Industry – strategic investments along supply chain (BUT many cases derailed by subsequent Financial Crisis)
- BUT – Need for Vigilance and Monitoring and ability to Respond as a Nation/Region - cross-border arrangements getting more important – role of Private sector/investment/driver – quicker response – Adam Smith's 'Invisible Hand'
- While major initiatives are targeted at fixing Supply side, efforts should also focus on conditioning or managing the Demand side as well
- Need to get the Basics & Balance Right

WAKE UP CALL?


"For anyone concerned about the future of food, this is an indispensable book."
—MICHAEL POLLAN
THE END OF FOOD
PAUL ROBERTS
Author of the best-selling THE END OF OIL


The Economist
THE END OF CHEAP FOOD

UNDERSTAND WHAT FOOD SECURITY REALLY MEANS

- **Food Security,** like love means different things to different people under different circumstances
- **Maxwell's review (1996)** : encountered 32 different definitions!

"…When all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food that meets their dietary needs and food preferences for an active and healthy life"

Source: FAO, 2004

DECIDE WHICH ASPECTS OF THE FOOD SECURITY CHALLENGE MERIT MOST ATTENTION/INVESTMENT:

- **Availability => overall ability of the agricultural system to meet food demand**
- **Access => by individuals to adequate resources (entitlements) to acquire appropriate foods for a nutritious diet**
- **Utilization => safety, quality and nutritional aspects of food products**
- **Stability => individuals at high risk of temporarily or permanently losing their access to the resources needed to consume adequate food**

Source: FAO, 2004

If food **availability** is the priority, relevant **means** include:

- Grow your own offshore
- Increase imports
- Expand area
- Restrict exports
- Raise farm productivity
- Reduce post-harvest losses

If **access** to food important, consider other **thrusts/means**:

- Reinforce free trade
- Give in-kind food aid
- Targeted feeding programs
- Provide cash transfers, coupons, etc
- Improve logistics
- Manipulate prices

Source: Lamb, 2009

If better food utilization is the priority, other options are:

- Develop new products
- Fortify existing products
- Improve food safety
- Improve diets
- Educate consumers
- Train foodservice operators

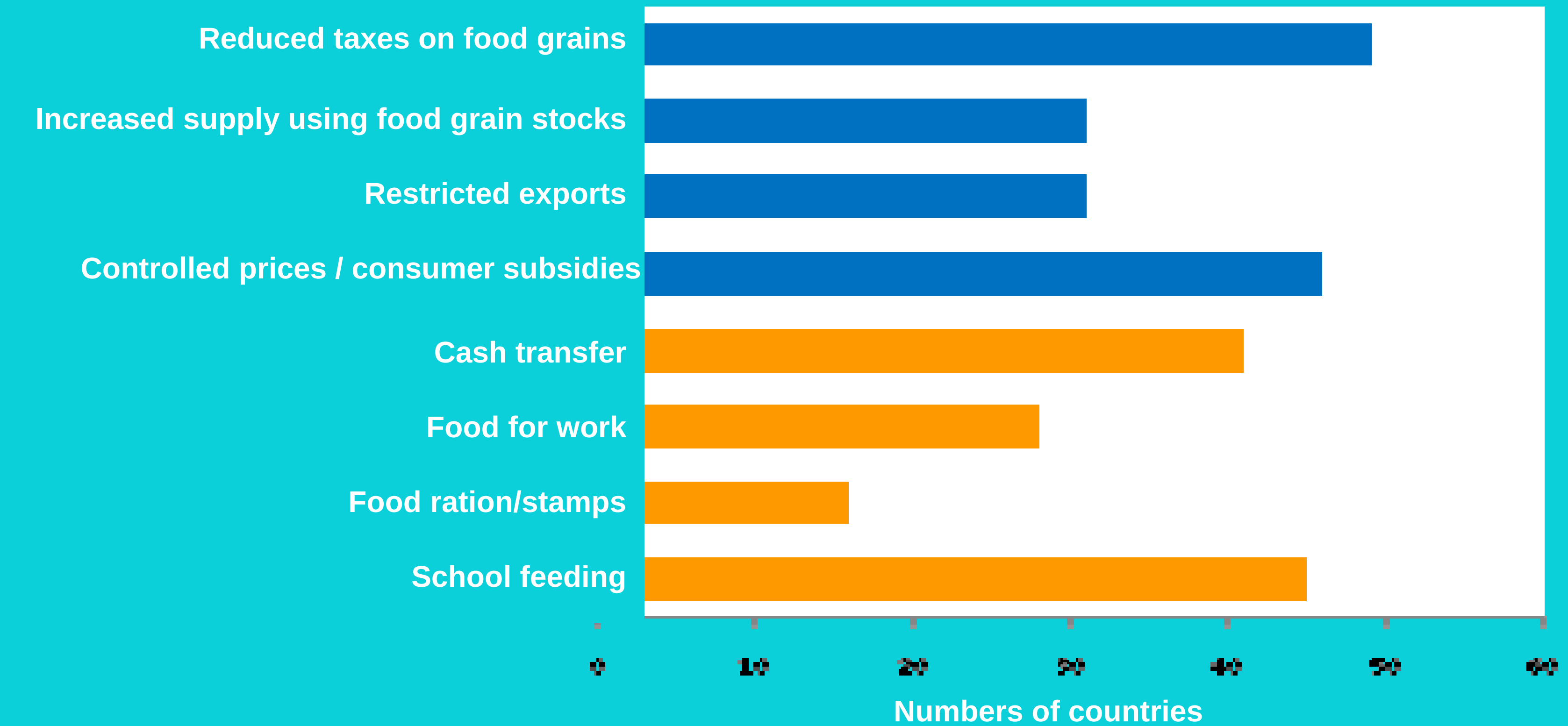
if enhanced food stability is the priority, thrusts/means are:

- Use crop or weather insurance
- Create virtual stockpiles
- Develop more tolerant varieties
- Establish warehouse receipts program
- Enhance transit and shelf life
- Create physical reserves

Source: Lamb, 2009

DEVELOPING COUNTRIES RESPONDED TO HIGHER PRICES WITH DIFFERENT POLICIES AND PROGRAMS, SOME DISTORTIONARY

Figure 2: Developing countries responded to higher prices with price policies, stock releases, export restrictions and social protection programs



Source: World Bank, PREM Poverty Group survey, 2008

STRATEGIC APPROACH TO FOOD SECURITY

Some countries, including Malaysia, which have cushioned the impact – have invariably adopted a pragmatic Strategic Approach linking:

- **Food Security (focused on rice – basic staple, 'political' crop); and**
- **Economic Growth (growth with redistribution)**

at both the 'macro' and 'micro' levels.

- **Macro-level : leverage policy control over:**
  - **Sectoral composition of income growth**
  - **Food prices - stabilisation**
- **Micro-level : rural development**
  - **Rural education/HRD – accessible to poor and females**
  - **Rural clinics – healthcare, family planning**
  - **Home economics, nutrition education**

STRATEGIC APPROACH TO FOOD SECURITY

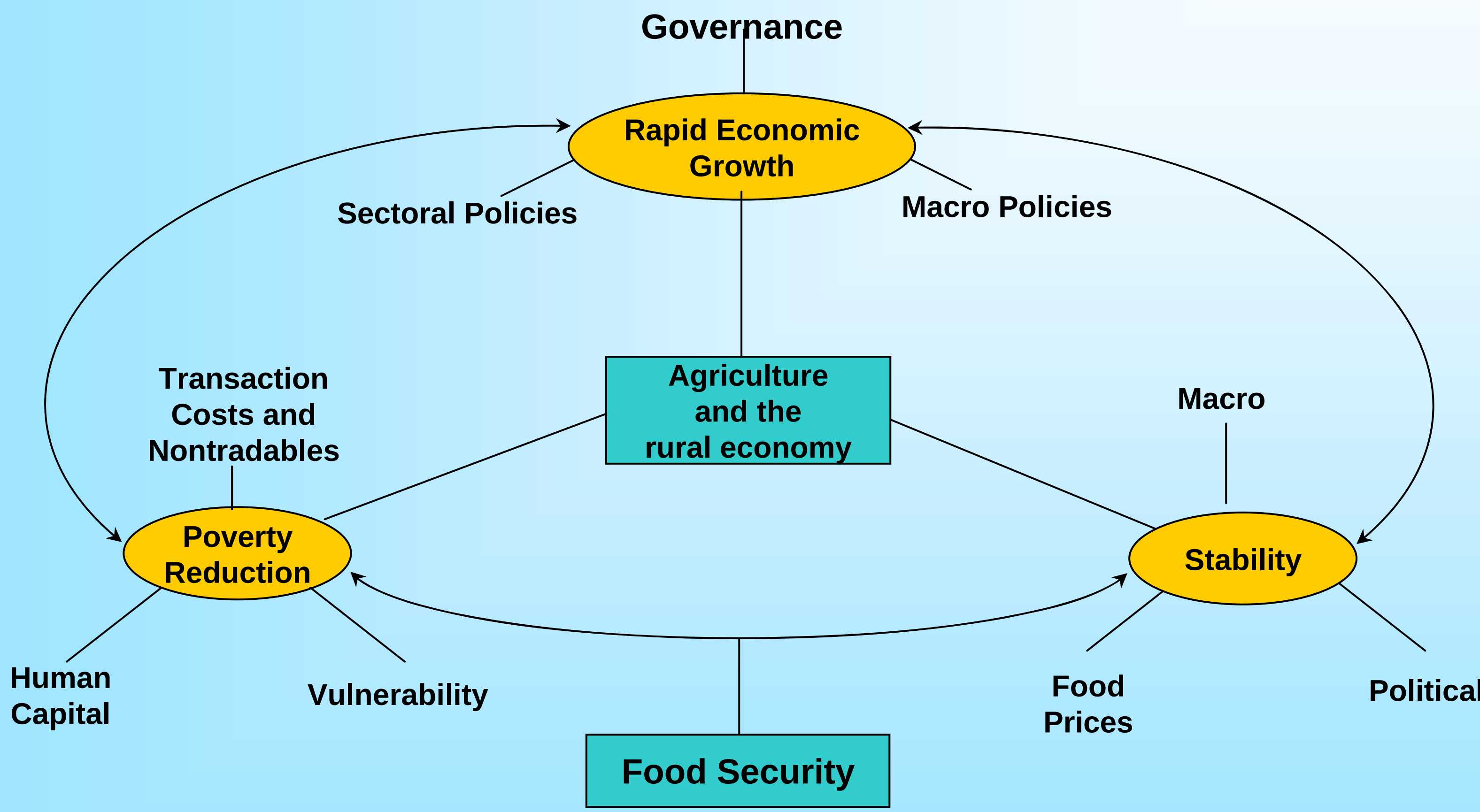
Strategic Approach comprises 3 components:

- **Rapid growth in macro economy;**
- **Poverty eradication through rural economic growth ('pro-poor' growth); and**
- **Stability of food system.**

Net-result : GOT THE JOB DONE! – though sometimes frowned upon by some economists because of 'distortionary', 'efficiency', and cost effectiveness arguments.

A MACRO PERSPECTIVE OF THE DETERMINANTS OF FOOD SECURITY:

Three "virtuous circles" of activity, held together by agriculture and the rural economy



Source : Timmer (2004)

NEW DIMENSIONS - FUTURE FOOD SYSTEMS

Ambler-Edwards et al (2008) – Chatham House Report

…over the next few decades, the global food system will come under renewed pressure from the combined effects of seven fundamental factors:

- Population Growth
- Nutrition Transition
- Energy
- Land
- Water
- Labour
- Climate Change

FUTURE FOOD SYSTEMS (cont'd)

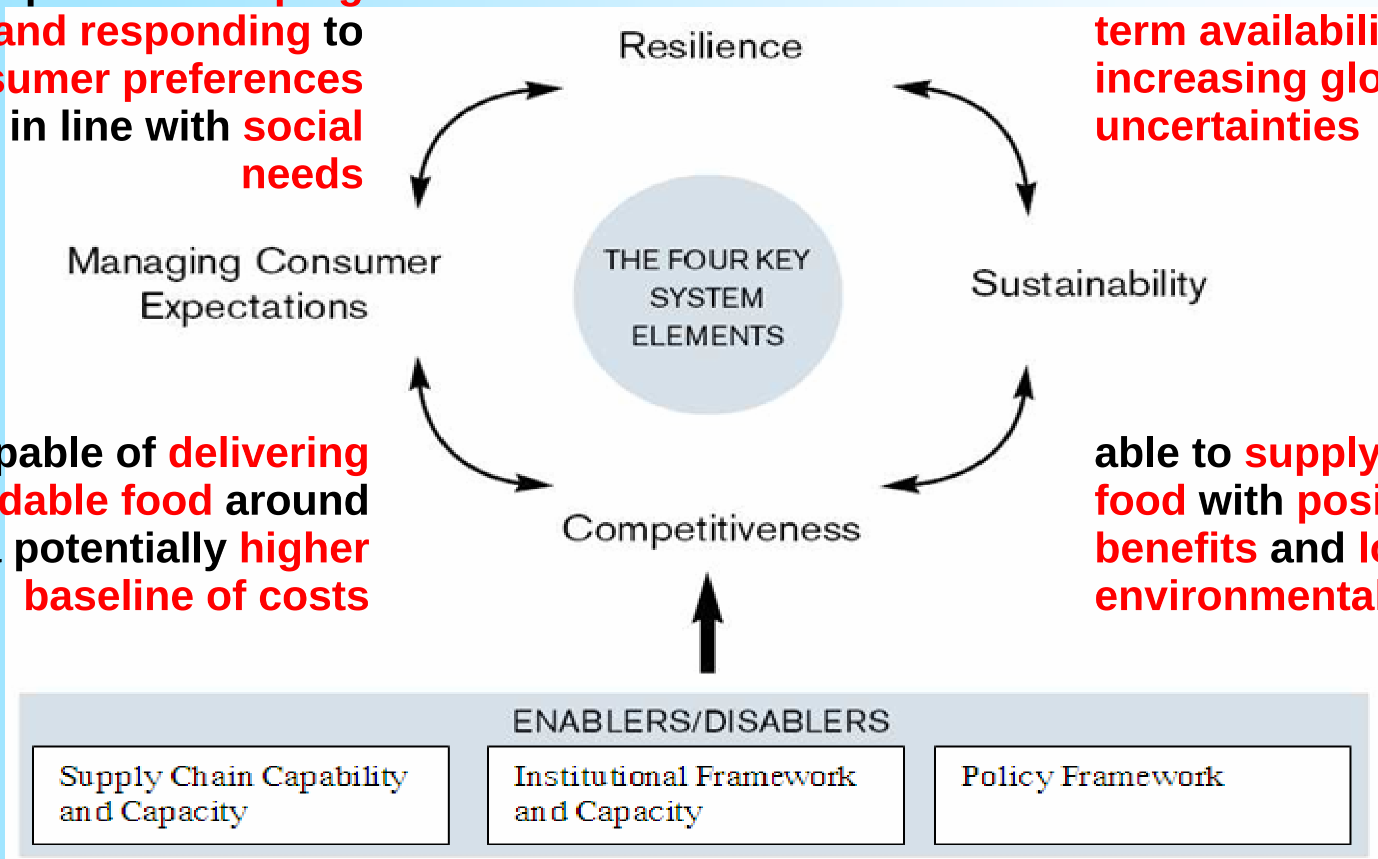
They further posited that:

- **'Business as usual' models would at worst fail, at best poor preparation for future scenario;**
- **Food supply arrangements must operate profitably around significantly higher price norm (reflecting true cost of resources & incorporating wider social and ecological considerations);**
- **Supply systems going to be more uncertain and prices more volatile**
- **Able to reconcile often conflicting goals of resilience, sustainability and competitiveness while meeting and managing consumer expectations; and**
- **New capacities, policy framework and institutions are cornerstones**

FUTURE SUPPLY SYSTEMS

capable of shaping and responding to consumer preferences in line with social needs

able to assure longer term availability despite increasing global uncertainties



capable of delivering affordable food around a potentially higher baseline of costs

able to supply safe, healthy food with positive social benefits and low environmental impacts

Ambler-Edwards *et al.* (2009)

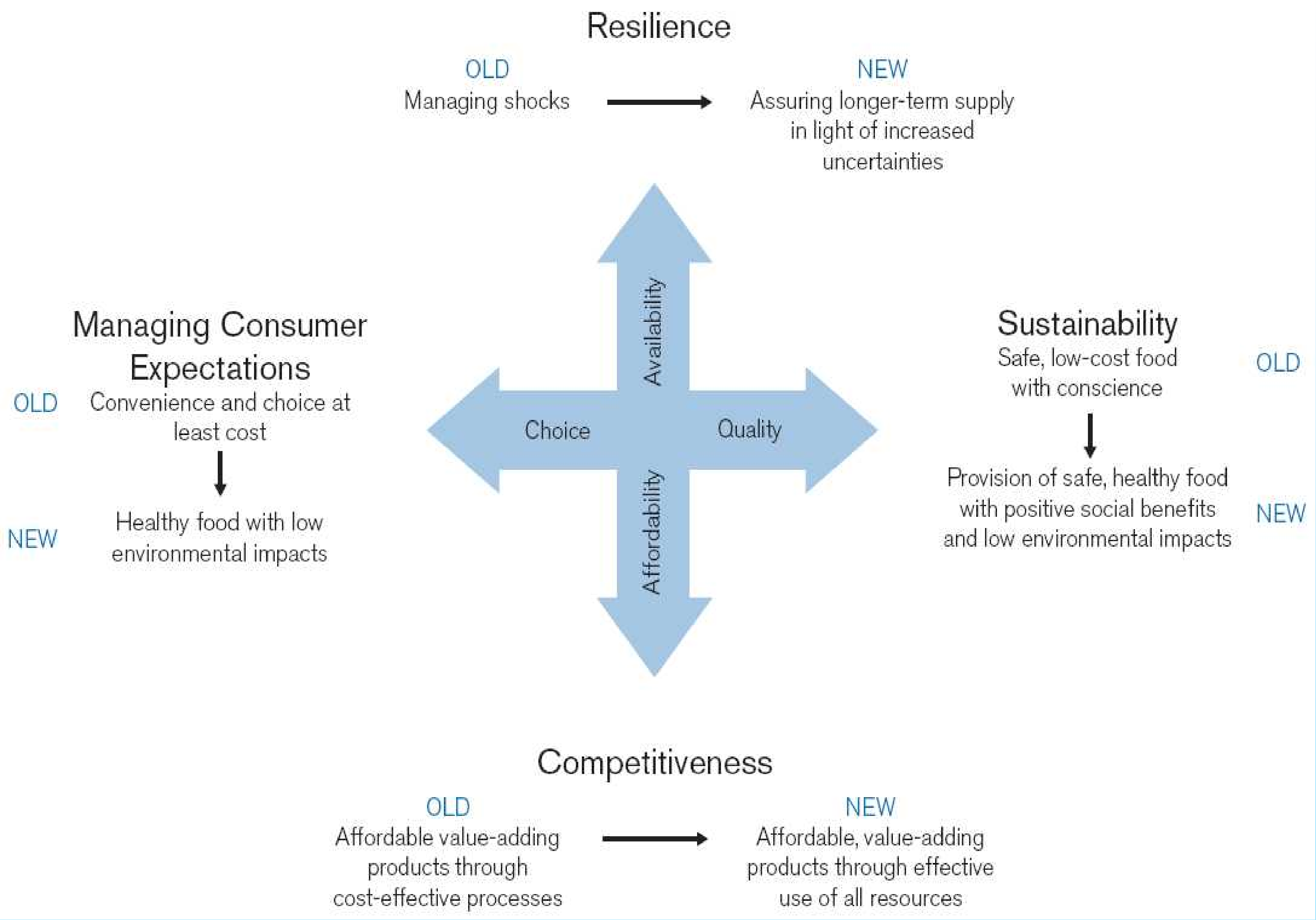
FOOD SUPPLY SYSTEM - UK

	Inputs/Agriculture	Primary Processing	Secondary Processing and Distribution	Retail	Consumption
Relationship Power	Small/medium-sized organizations	Private organizations	Own label / Brand owners	Four dominant organizations	Marketing-led product development
Energy	Fertilizer production	Refrigeration	Transport and cooking	Refrigeration	Transport and cooking
Resource Usage	Labour / Land	Water	Transport infrastructure	Urban Land	Power
Direct Emitted Carbon	Nitrogen and livestock methane		Transport		Landfill
Product Wasted or Lost	5%	5%	2%	10%	33%

High
Medium
Low

- This is an indicative interpretation of the UK supply network. Waste figures based on work undertaken by the Food Process innovation Unit at Cardiff University on behalf of the Food Chain Centre. WRAP estimates have been used for consumer waste figures. Available online at:
- http://www.wrap.org.uk/wrap_corporate/news/food_waste_set_to.html (15.10.08).

TRANSITION FROM OLD TO NEW GOALS



NEW DIMENSION IN FOOD SECURITY - TRACEABILITY

- **A ‘new dimension’ of Food Security, especially in US, EU and other developed nations – traceability - however, somewhat blurred by concerns over Food- Financial Crises in 2008 – refers to supply protection rather to supply insufficiency – ‘that what one eats is safe and traceable’ – from ‘farm to fork’**

- **Traceability (ISO Definition) – The ability to trace the history, application or location of an entity by means of recorded information**
  - ***In the food chain* – The ability to trace and follow a food, feed, food producing animal or substance through all stages of production and distribution**
  - ***In production systems* – The ability to trace the history of the product through the supply chain to or from the place and time of production, including the identification of inputs used and production operations undertaken**

TRACEABILITY (CONT'D)

- Generally catagorised into fresh produce (fruits, vegetables), grains and oilseeds, and livestock and fish as well as their processed forms

- Heightened after 9/11 and series of food scares – BSE, Avain Flu (H5N1), Nipah virus, Foot & Mouth Disease, bio-terrorism, contaminated seafood, pet food – more recent Toxic infant formula/milk and biscuits, etc tainted with melamine – impact on entire supply chain

- Compliance and beyond - business angle (first mover advantage, branding, product differentiation) – Adam Smith's 'invisible hand'

NEW DIMENSION: REGIONAL SOLUTIONS/EFFORTS

- **Recent global food crisis – recognition that food security one of most important cross-border issues where countries acting alone are unable to handle – top priority issue in ASEAN and East Asia (ASEAN+3) levels – Malaysia key player in BOTH**
  - ***In 14th ASEAN Summit, March 2009, Thailand*** **– adopted ASEAN Integrated Food Security Framework (AIFSF) and Strategic Plan of Action on Food Security in the ASEAN Region (SPA-FS)**
  - ***In 11th ASEAN+3 Summit, Nov 2007*** **– identified food security issues as the key area where regional cooperation need to be advanced.** ***NEAT Working Group in East Asian Food Security, July 2009*** **– need to build on East Asia Emergency Rice Reserve (EAERR) piloted in 2004 [Japan earmarked 250,000MT of rice, recently China pledged 300,000MT – cf ASEAN Emergency Rice Reserve of 87,000MT] and ASEAN Food Security Information System (AFSIS) initiated in 2003 and weave into AIFSF and SPA-FS**
  - ***Ongoing World Bank/ASEAN/ADB/FAO Study on Enhancing Food Security in ASEAN: Policy Reforms, Private Investment in Food Supply Chains and Cross-Border Trade Facilitation***

IMPLICATIONS ON FOOD SELF-SUFFICIENCY

'Food Self-sufficiency – given Malaysia's enviable position (small open economy) more relevant to focus on 'Food Self-reliance' in the wake of New Dimensions of Food Security and regional initiatives.

Malaysia: small open economy but:

- **'large' trading nation – top 20 (WTO, 2005-2008) - 2006, 2007 & 2008's total trade exceeded RM1 trillion;**
- **IMD World Competitiveness Scoreboard – 19th in 2008**
- **A.T Kearny/*FOREIGN POLICY* Globalisation Index – 19th in 2006**
- **Healthy Trade Surplus (Balance of Trade) – > RM100 billion per annum over 2006(108 billion) - 2008(141 billion) period**

So given the absolute quantum of the types of food demanded, our extensive trade links, excellent International relations, and healthy trade surplus, we do not envisage serious problems in sourcing – comfortably 'food self-reliant'. Rightfully, we have elected to remain net importer for rice and other food items

SELF-SUFFICIENCY LEVELS IN FOOD COMMODITIES, 2000-2010 (%)

Commodity	*2000*	*2005*	2007	*2010*	Revised 2010
Rice	70	72	72	90	86
Fruits	94	117	105	138	106
Vegetables	95	74	89	108	91
Fisheries	86	91	97	104	103
Beef	15	23	25	28	28
Mutton	6	8	9	10	10
Poultry	113	121	121	122	122
Eggs	116	113	114	115	115
Pork	100	107	116	132	132
Milk	3	5	n/a	5	n/a

Source: Ninth Malaysia Plan (9MP) & MTR 9MP

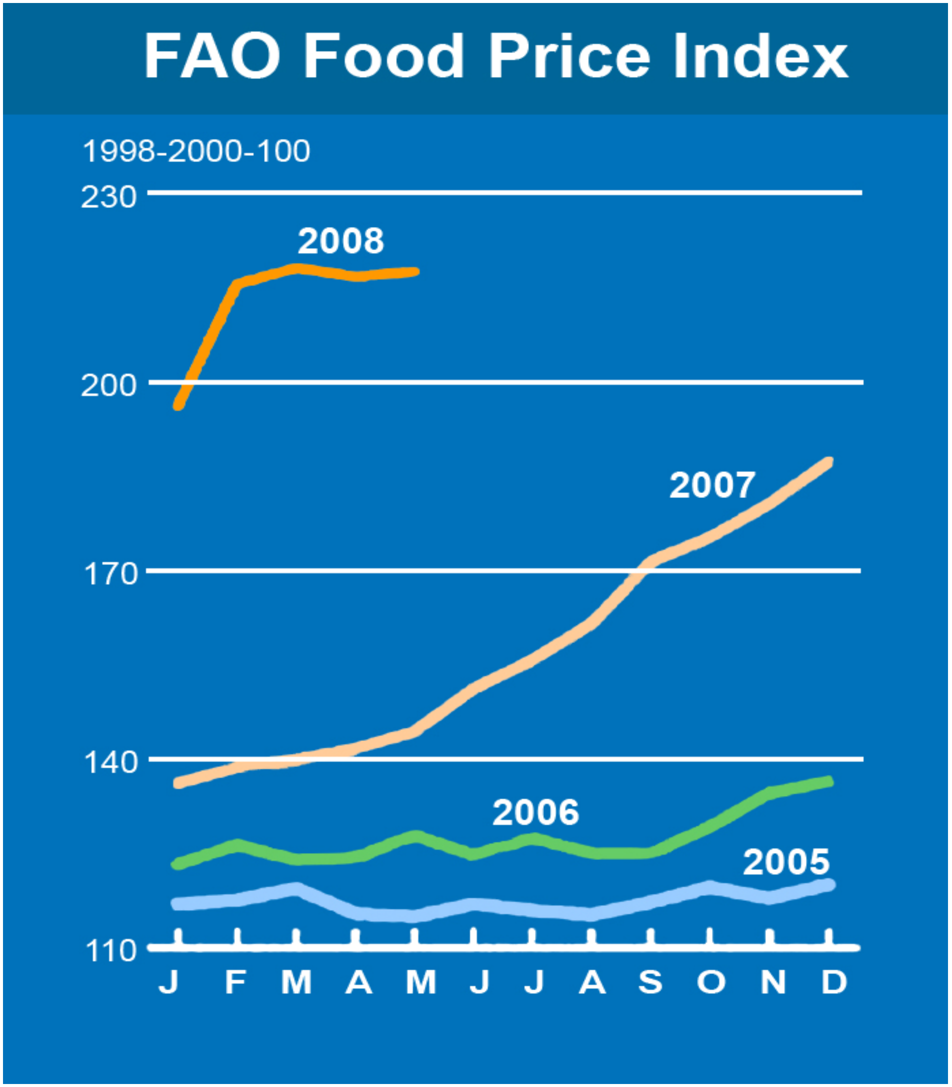
IMPLICATIONS: RISING FOOD IMPORT BILL

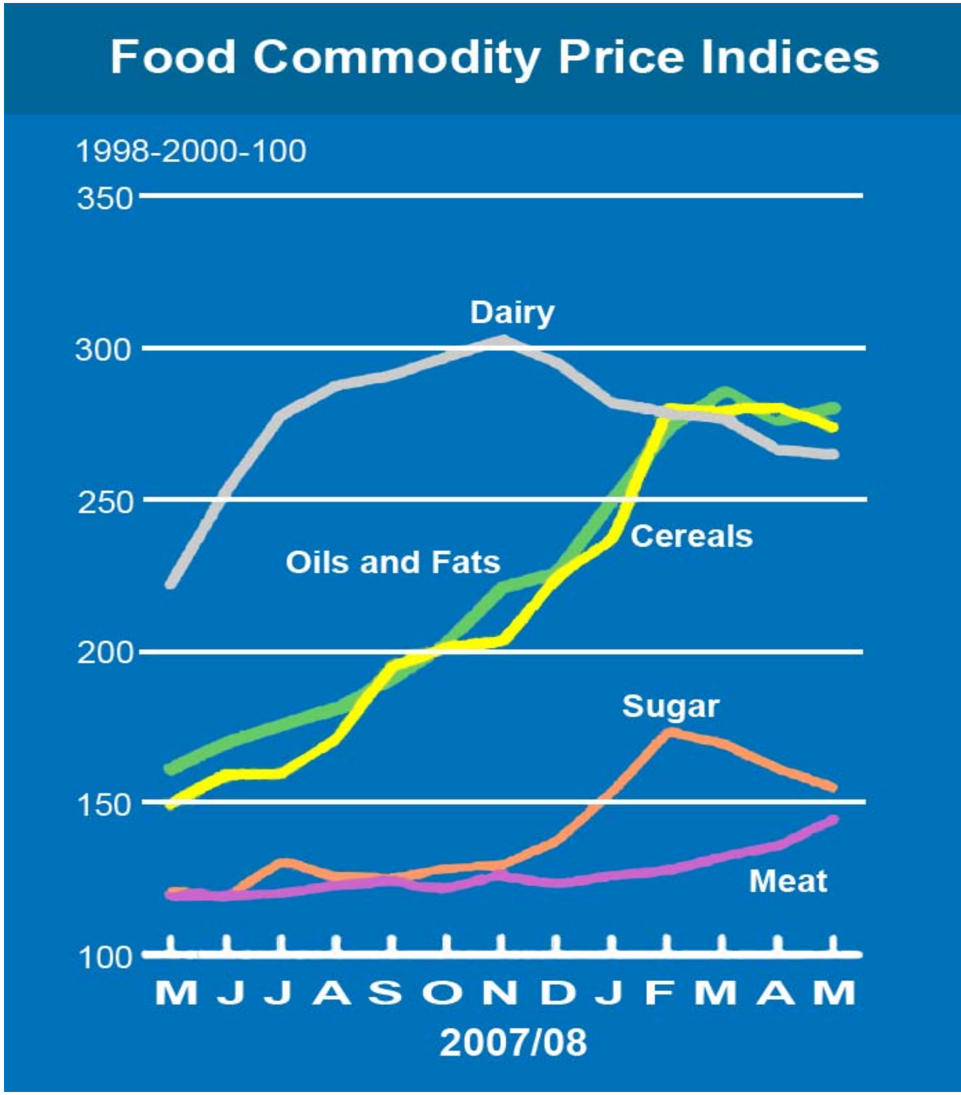
- 'Rising Food import Bill' (RM Billion)

	2005	2006	2007
Food Imports	17.73	19.95	23.37
Food Exports	10.67	11.39	13.76
Net Imports	7.06	8.56	9.61

- Source: MOAAI
- 2007 - deficit of RM9.6 billion in Malaysia's Food Import Bill – often stressed
- My take, given our Balance of Trade of RM100.34 in 2007, this deficit works out to 9.6% of overall trade surplus.
- More importantly, definitional 'quirk' - palm oil and palm oil products exports in 2006-2008 were RM22.7 billion, RM33.2 billion and RM47.9billion (>7% of total exports). If 'Oils & Fats' included as food component (as per classification by both FAO and World Bank), totally different picture – MALAYSIA IS A NET EXPORTER OF FOOD (traditionally defined)– YET some quarters persist in highlighting 'rising food import bill'. .. WHY?

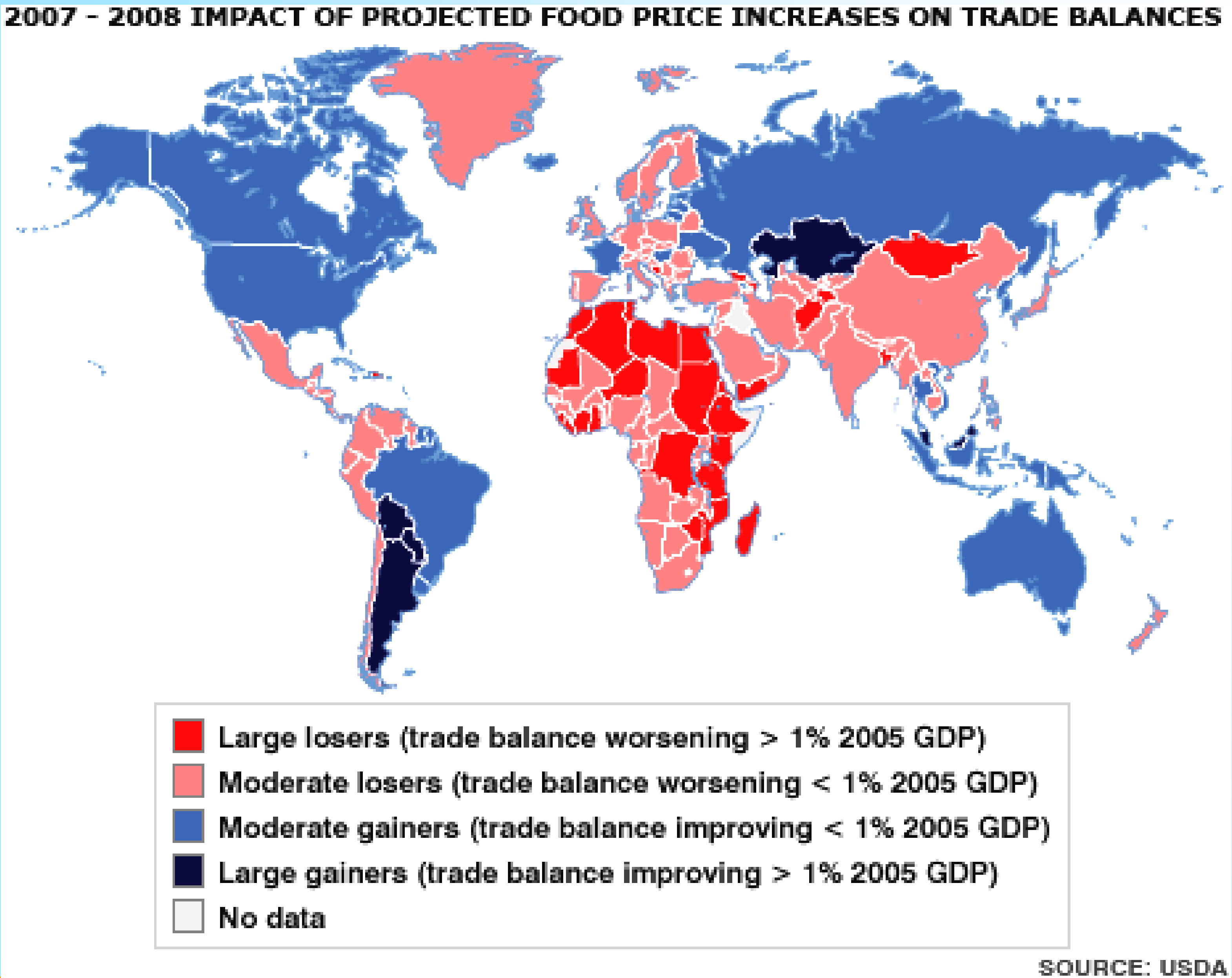
FAO's FOOD PRICE INDICES by Categories





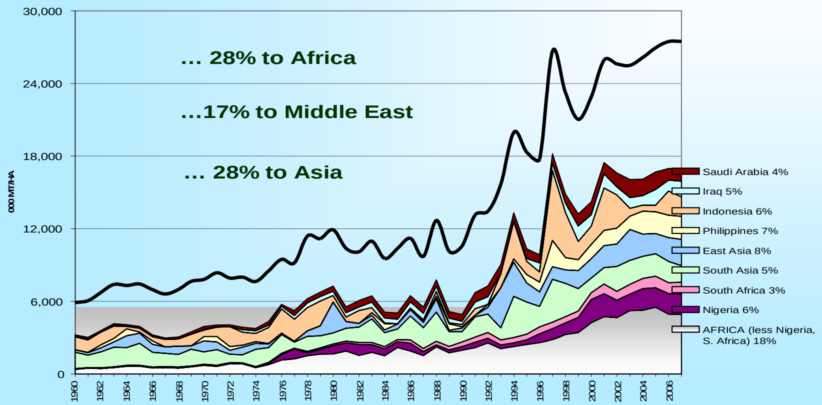
N.B. World Bank's Classification – Oils & Fats, Cereals, and Other Food (meat, sugar, beverages, etc)

WORLD FOOD CRISIS: GAINERS & LOSERS



THE CASE OF RICE: GLOBAL – Changing Situation and Trade Pattern

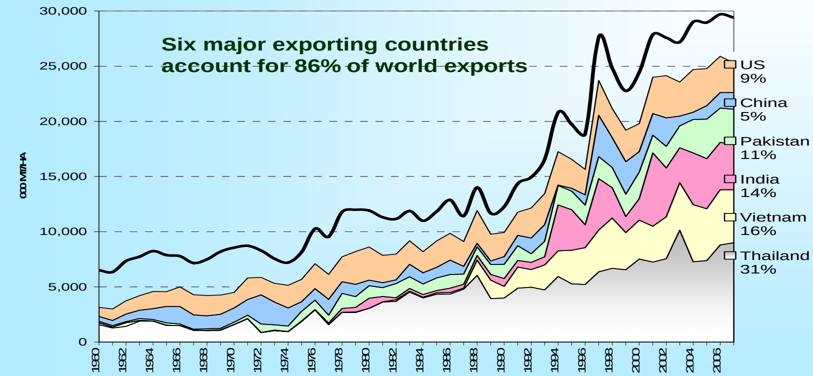
Figure 1: Changing Import Structure



Source of basic data: USDA, 1960-2007 (TY Imports)

Institute of Strategic and International Studies (ISIS) Malaysia www.isis.org.my

Figure 2: Changing Export Structure



Source of basic data: USDA, 1960-2007 (TY Exports)

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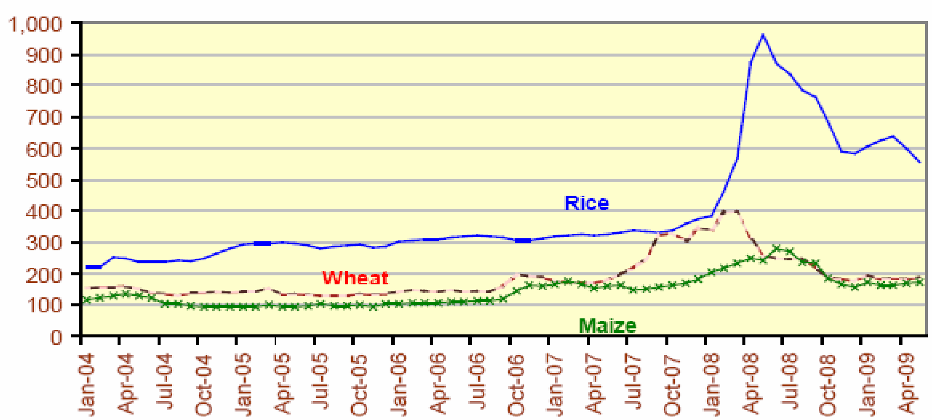
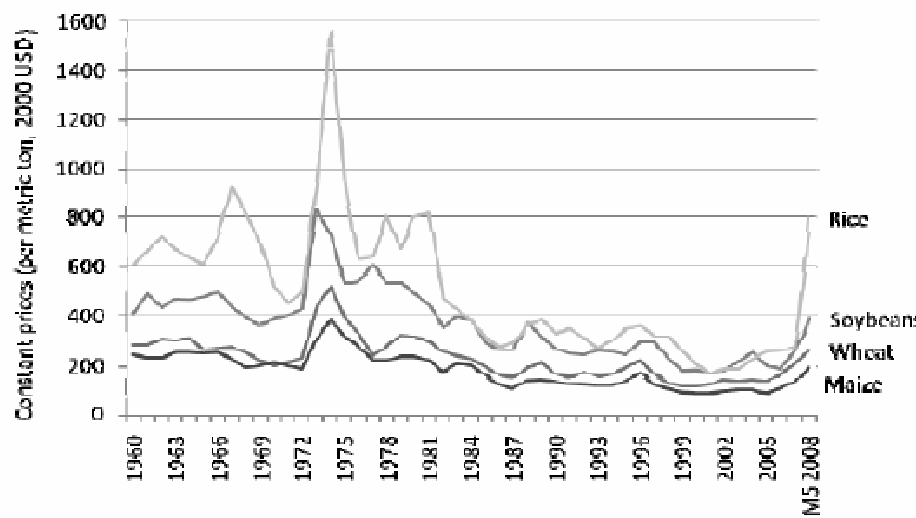
World Cereal Prices (normal scale)
Jan 04 - May 09



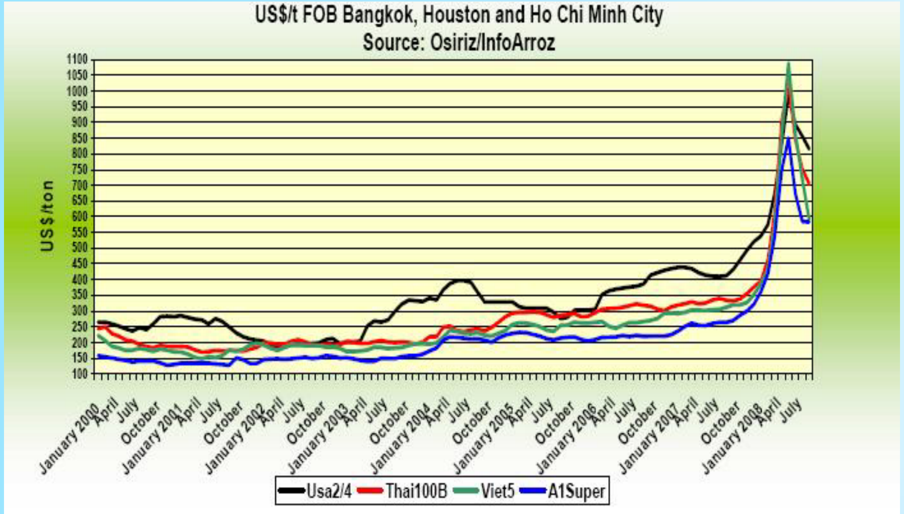
ที่มา: Food and Agriculture Organization of the United Nations (FAO)



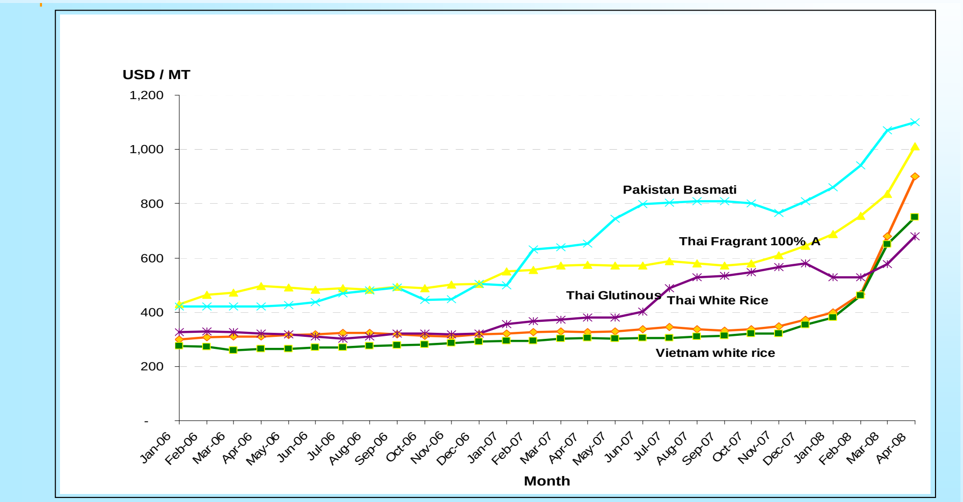
Source: IMF (2008b). Data are deflated by the US GDP deflator.

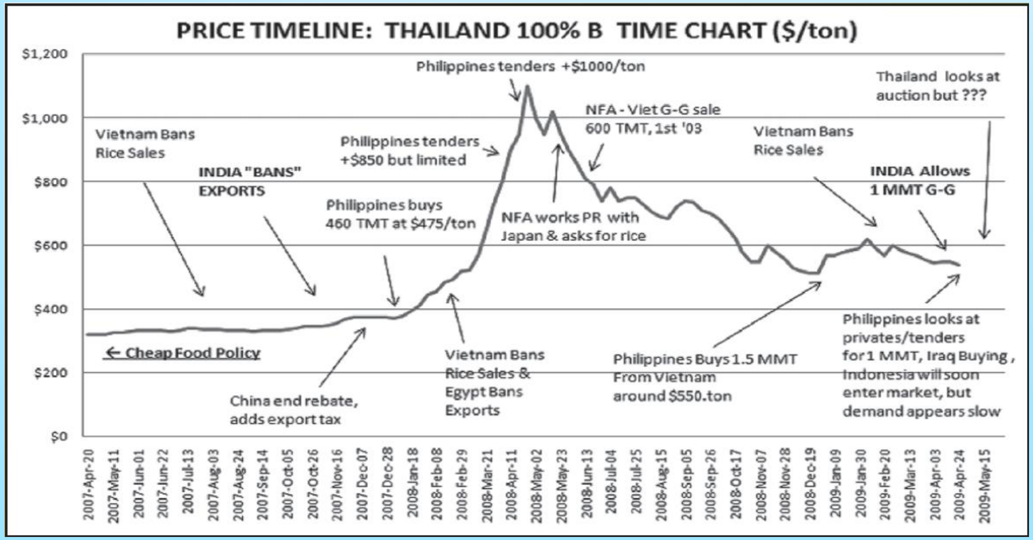
GLOBAL – World Food Crisis in Retrospect

Monthly World Rice Prices for Various Types of Rice



Monthly Imported Price by Rice Types, 2006-2008





GLOBAL – Food Security

Figure 7: Spatial & Temporal - Summary of Harvesting Periods Selected Rice Exporting Countries – Availability every month of year!

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Thailand						Secondary						
Vietnam							Secondary					
U.S												
India				Secondary								
Pakistan												
China S								Secondary				
China N												
Myanmar				Secondary								
Australia												
Argentina												
Uruguay												
Egypt												
EU												

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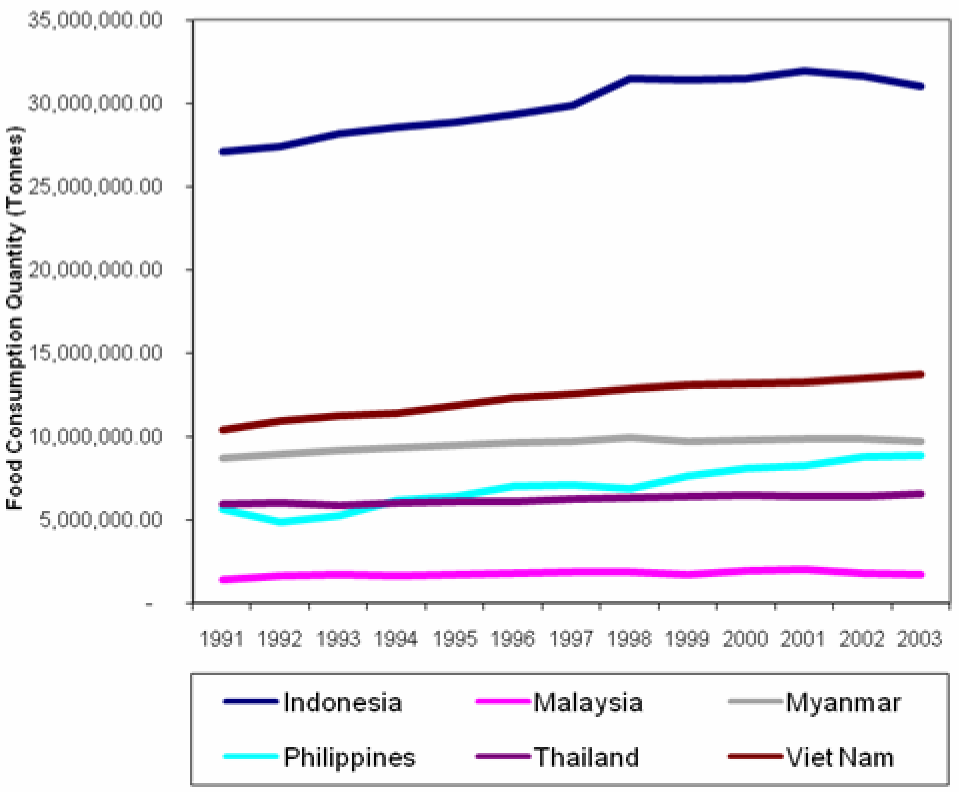
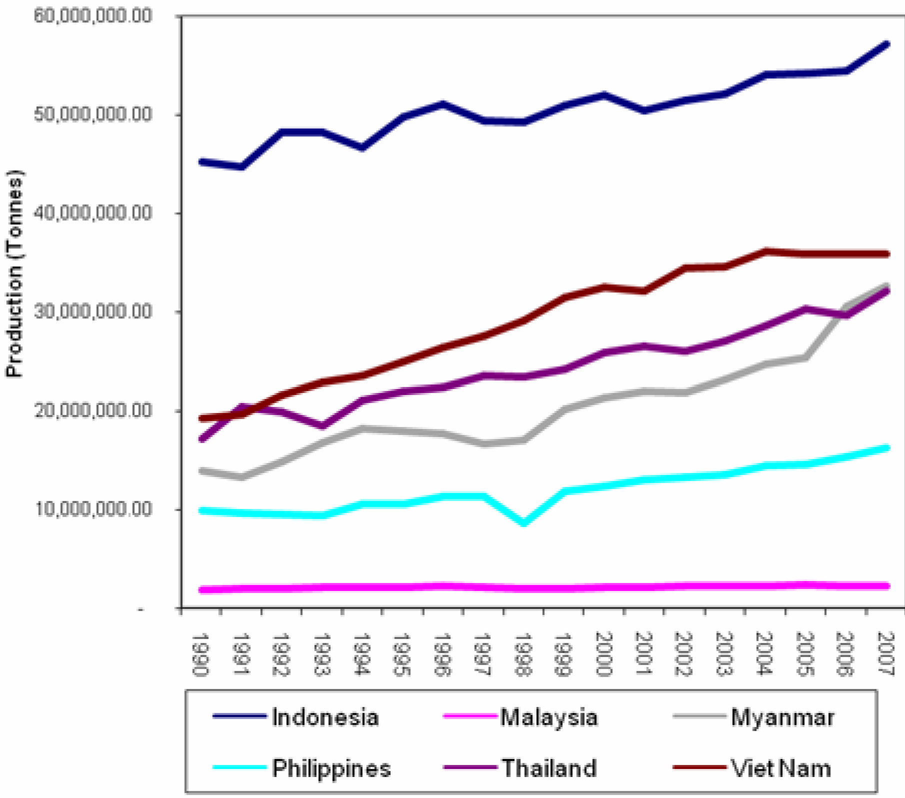
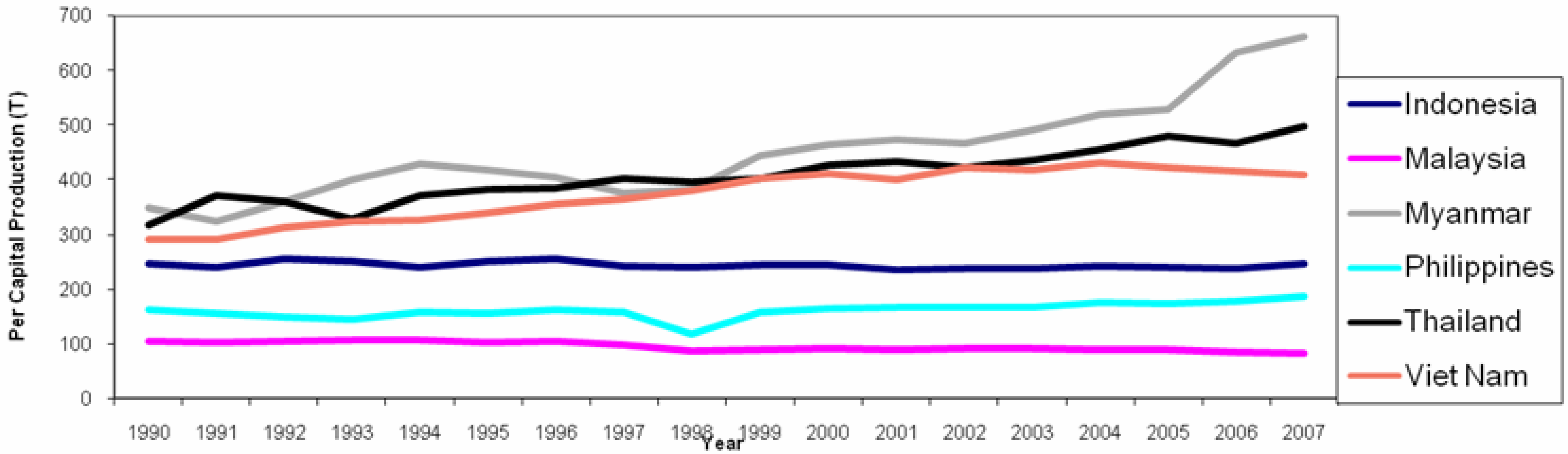


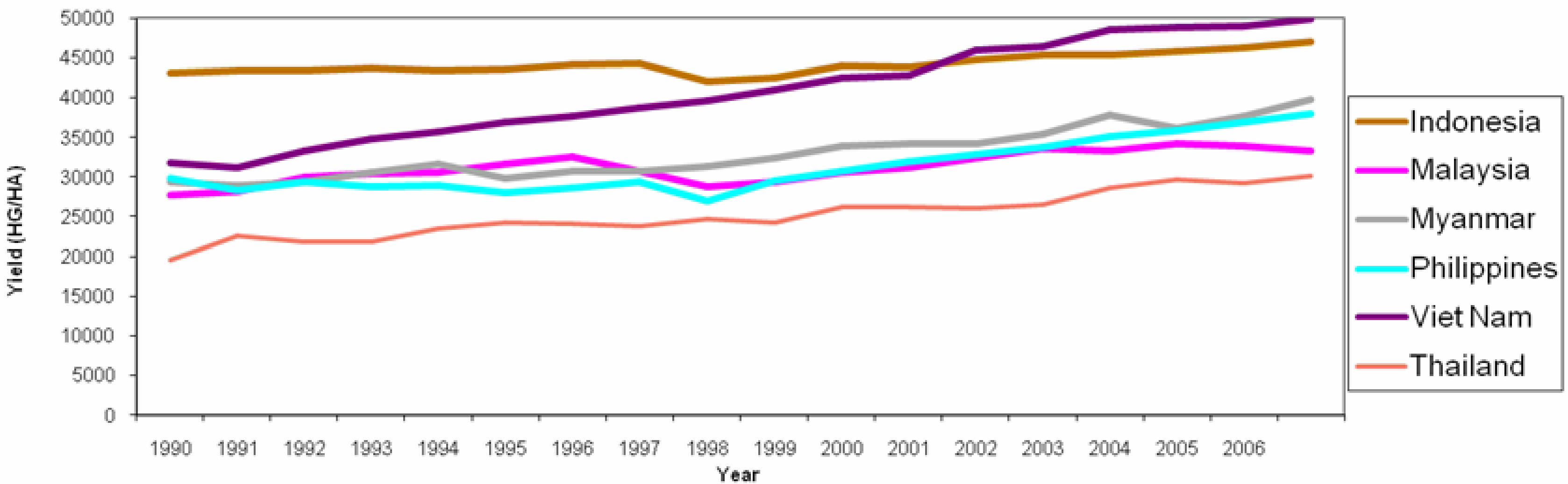
35,000,000.00
30,000,000.00
25,000,000.00
20,000,000.00
15,000,000.00
10,000,000.00
5,000,000.00
-
Food Consumption Quantity (Tonnes)
1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003
Indonesia
Malaysia
Myanmar
Philippines
Thailand
Viet Nam



60,000,000.00
50,000,000.00
40,000,000.00
30,000,000.00
20,000,000.00
10,000,000.00
-
Production (Tonnes)
1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007
Indonesia
Malaysia
Myanmar
Philippines
Thailand
Viet Nam

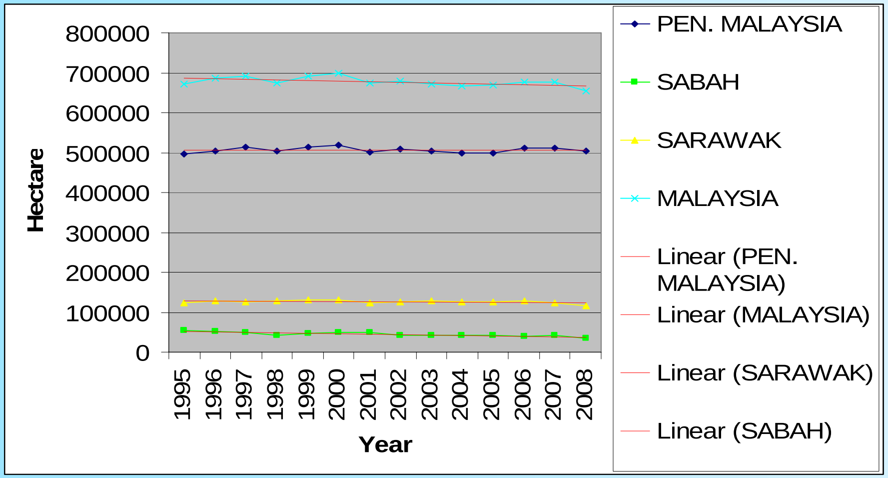
ASEAN


Per Capital Production (T)
700
600
500
400
300
200
100
0
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
Year
Indonesia
Malaysia
Myanmar
Philippines
Thailand
Viet Nam

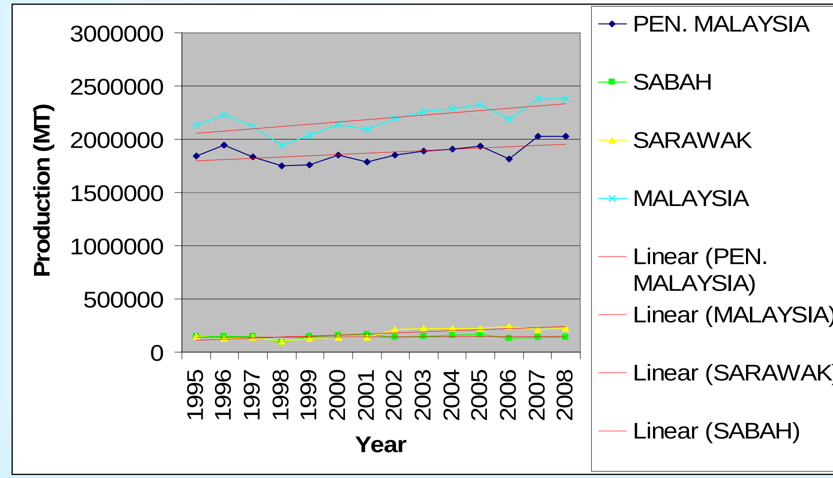

Yield (HG/HA)
50000
45000
40000
35000
30000
25000
20000
15000
10000
5000
0
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
Year
Indonesia
Malaysia
Myanmar
Philippines
Viet Nam
Thailand

MALAYSIA

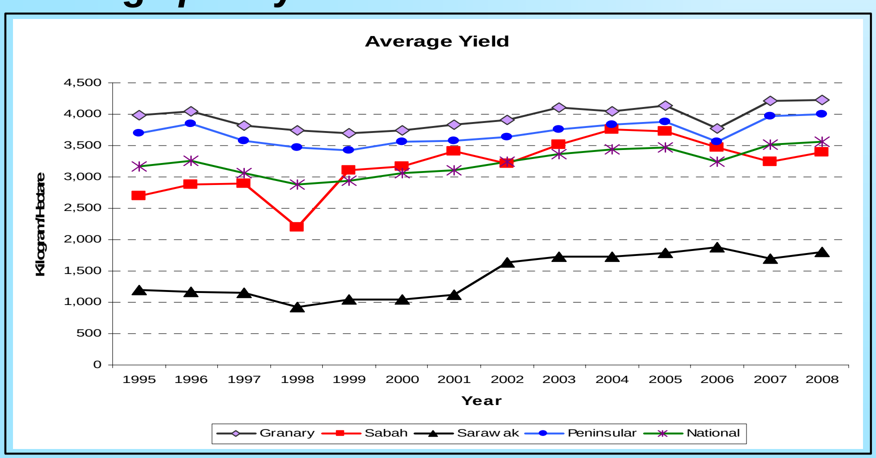
Padi planted area trend



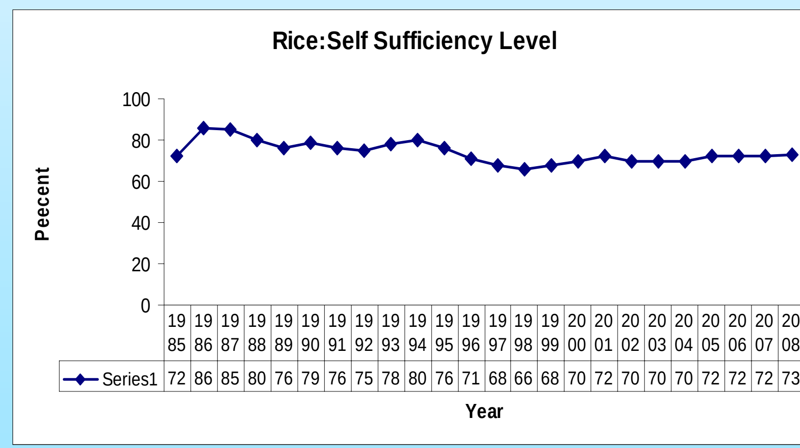
Padi production



Average *padi* yield



Rice self-sufficiency level



MALAYSIAN RICE SECTOR IN PERSPECTIVE

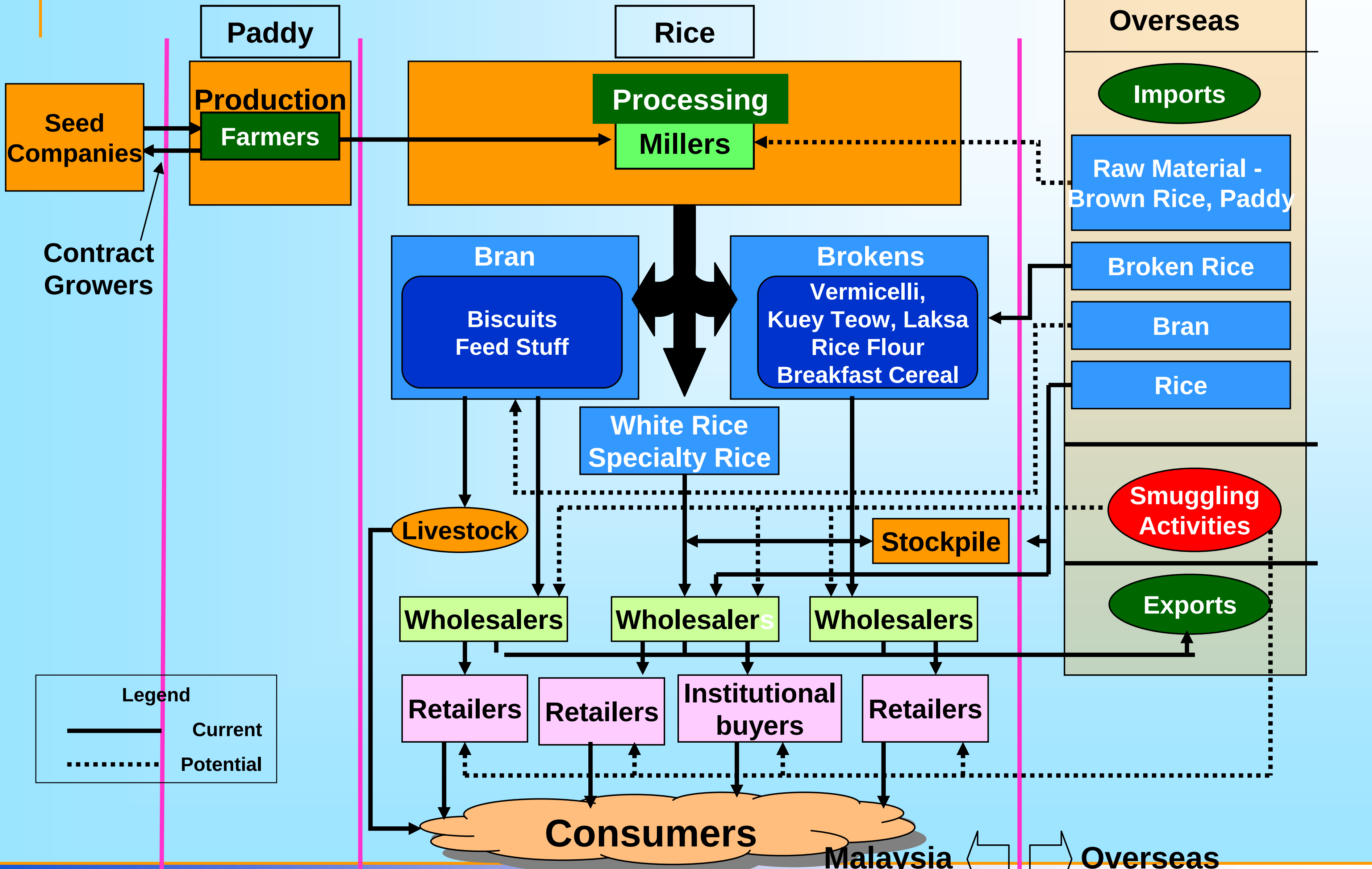
- Area under rice – 415,000 ha (>50% double cropped) Vs >4 million ha under oil palm, 1.2 million ha under rubber - Comparative advantage in tree crops (no deltas or wide alluvial plains)
- Contribution to GDP <1% (0.7% in 1988, 0.2% in 2006)
- No. of farm families – 155,990; Av yield – 3.43 MT/ha
- Av age of farmers – 60 (48% > 60, 5.6% < 40)
- Annual imports 400K to 800K MT (<3% of globally traded rice)
- Always elected to be net importer (60 to 90% SSL)
- Disproportionate intervention/support – 'political crop'- more interventionist after recent food crisis
- Production-centric, Peninsular Malaysia-centric, & overt reliance on subsidies

GOVERNMENT INTERVENTION AND CORNERSTONE OF MALAYSIAN RICE POLICY

Rice Policy – Historical Perspective:

- **3 main objectives – ensuring food security; raising farm income & productivity; ensuring rice supply at fair & stable prices**
- **LPN established 1972, sole importer in 1973, corporatised as Bernas in 1994, privatised BERNAS in 1996 (market liberalisation), listed KLSE in 1997 – sole-importer status retained until January 2011, in return for performing set of 'duties' & 'social obligations' as per Privatisation Agreement**
- **Production-centric & balancing producers' and consumers' interests**

MALAYSIAN RICE SUPPLY CHAIN – SYSTEM SPECIFICATION



MALAYSIA'S RESPONSE TO FOOD CRISIS:

- Comprehensive Package to keep rice prices low, supplies high, and ensure better prices to farmers:
  - Assure supply of subsidised control grade ST 15% (RM1.80/kg) nation wide [subsequent subsidy to millers, including BERNAS, @RM800/MT to produce ST15%]
  - Capping of other local rice prices, ST 5% and ST 10%
  - Floating of imported rice prices
  - Increase in GMP of padi from RM650 to RM750/MT
  - Gradual removal of interstate movement of padi
  - Increase on the National stockpile from 92,000MT to 239,000MT
- National Food Security Policy, 2008
  - Increased investment in paddy/rice, fisheries, livestock and vegetables
  - Diesel subsidy to fishermen
  - New paddy areas (rice bowls) in Sabah and Sarawak
  - Comprehensive (excessive?) package for rice

PADI AND RICE PRODUCTION PROGRAMMES IN THE NATIONAL FOOD SECURITY POLICY, 2008

No.	Programme	Budget (2008-RMmil.)	Budget (2009-RMmil.)
1	**Irrigation Infrastructure And Drainage Development**	**97.50**	**800.00**
2	**Irrigation Infrastructure And Drainage Maintenance**	**150.00**	**134.00**
3	**Land Levelling**	**24.85**	**59.00**
4	**Additional NPK Fertilizer**	**209.70**	**250.00**
5	**Pest Control Aid**	**74.00**	**173.00**
6	**Lime Application**	**20.00**	**46.00**
7	**Farm Mechanization**	**96.10**	**186.00**
8	**Incentive and Subsidy**	**90.00**	**133.00**
9	**Research and Development**	**5.80**	**6.00**
10	**Sabah and Sarawak Rice Subsidy**	**406.20**	**-**
11	**Miller Subsidy**	**300.80**	**400.00**
12	**Stockpiling**	**480.00**	**41.00**
	TOTAL	**1,954.95**	**2,228.00**

***excluding on-going paddy price subsidy (458.1 mil in 2008) and fertilizer subsidy programmes**

FOOD FOR THOUGHT:

- According to FAO (2008), about 10% of production increase will come from area expansion from current level of 3.75 billion hectares
- Maybe 20% will come from intensification
- Remaining 70% must come from R&D, innovation, and policies

10-20-70 rule

- Also recent econometrics studies have indicated that yield response elasticity for padi price is significantly higher than those for production subsidies (especially for fertilisers) in Malaysia

WHAT ELSE NEEDED?

- ‘Get the Balance Right’ – no one group gets everything it wants, sacrifices necessary but temporary – to accommodate new dimensions – also balance state, national and regional efforts

- Immediate, mid-term, longer-term efforts
  - Supply-side – supply response to price, exploit biotechnology & innovation, infrastructure, rationalise/repackage subsidies, public-private partnerships – along entire supply chain
  - Demand-side – reduce demand (reduce wastage, consumption, diversify diet - supplement with other staples/carbohydrates (e.g. Vitato) – also eat < meat & switch from terrestrial livestock to seafood/aquaculture (more efficient feed conversion ratio)
  - Strengthen & orchestrate rice supply chains and international networks – encourage competition, move on from single-desk trading in rice (Malaysia – odd man out in ASEAN)

CONCLUSION:

- Guardedly optimistic of Malaysia's ability to harness and exploit opportunities in relation to the dynamic changes in Food Security. However, the increasing need is to "get the basics and balance right". The dynamic interplay between the various drivers of development of supply chains and international webs/networks, strategy for future food systems and evolving innovative developments/ideas can and should be harnessed to generate wealth, income and stability and hence ensure food security at the local, national, and regional levels.
- A key challenge is continuously address the Fundamentals of population growth, the nutrition transition, energy, land, water, labour, and climate change as well as emerging trends, new ideas and innovations.

CONCLUSION (Contd)

- Another challenge is to mount multidisciplinary empirical studies to better understand the interplay and impacts and guide policy so that future development and progress can be more balanced and sustainable.
- Lastly, to end with a touch of Zen, this paper merely acts as a ‘finger pointing to the moon’. As always, the usefulness of the finger is in pointing away from itself to the light which illuminates finger and all.

THANK YOU !

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